Claims 16, 17, 27, 29-31, 34 and 35 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,698,627 ("Oguni et al."). The Examiner alleges that Oguni et al. discloses a novel additive for papermaking comprising an aqueous solution of a copolymer obtained by reacting (a) an acrylamide, (b) a vinyl monomer which is copolymerizable with component (a) and has a cationic group, (c) at least one of vinyl monomers which are copolymerizable with component (a) and (b) and have 2, 3 or 4 carboxyl groups in a molecule thereof and/or a salt thereof, optionally (e) a nonionic monomer which is copolymerizable with components (a), (b) and (c) if desired, and (d) a cross-linking compound, in the presence of (f) at least one of ethylene glycol, diethylene glycol, diethanolamine and glycerin.

With respect to the limitations of claims 16 and 17, the Examiner alleges that Oguni et al. disclose that the above-mentioned acrylamide (a) includes acrylamide, (meth)acrylamide as well as N-substituted acrylamides such as N-methyl (meth)acrylamide, N-ethyl (meth)acrylamide, N,N-dimethyl (meth)acrylamide, N-iso-propyl(meth)acrylamide, N-t-octyl (meth)acrylamide, etc., that can be used alone or in combination (col. 2, lines 39-45). The Examiner contends that these monomers correspond to monomer (b) of present claim 16.

The Examiner notes that the above-mentioned vinyl monomer (b) includes vinyl monomers containing tertiary, secondary or primary amino groups such as allylamine, etc., or their salts of inorganic or organic acids such as hydrochloric acid, sulfuric acid, formic acid, acetic acid, etc. (col. 2, lines 53-55), alleging that these monomers correspond to monomer (a) of present claim 16.

The Examiner notes that examples of the above-mentioned vinyl monomer (c), which is copolymerizable with components (a) and (b), include divalent unsaturated carboxylic acids such as maleic acid, fumaric acid, itaconic acid, muconic acid, citraconic acid, etc., and their salts of an alkali metal such as sodium, potassium, etc. and ammonium salts; allylsulfonic acid, 2-acrylamide-2-methylpropanesulfonic acid, etc. (col. 3, lines 8-30), alleging that these monomers correspond to monomer (c1) of present claim 16.

Further, the Examiner contends that the above monomers can be used alone or in combination (col. 3, lines 5-7, 18-20, 28-30), thus corresponding to monomer (c2) of present claim 16.

The Examiner also notes that as the above-mentioned cross-linking compounds (d), di(meth)acrylates such as ethyleneglycol di(meth)acrylate, diethyleneglycol di(meth)acrylate, triethyleneglycol di(meth)acrylate, propyleneglycol di(meth)acrylate, etc. can be used (col. 3, lines 32-62).

With regard to the limitations of present claim 27, the Examiner alleges that Oguni et al. discloses that because of the introduction of cross-linking structure by the cross-linking compound (d), the molecule expands and thus the number of contact points with fibers increases, concluding that freeness, retention and paper-strengthening effect are enhanced, citing col. 4, lines 54-58.

With regard to the limitations of claims 29-31, 34 and 35, the Examiner alleges that Oguni et al. disclose that preparation of acrylamide copolymers can be carried out by any conventional process, for example, components (a), (b), (c), (d), (e) if used, and (f) can be placed together with water in any reaction vessel in amounts such that the monomer concentration is 2-40 wt %, preferably 5-30 wt %, and a radical polymerization initiator can be added. If required, a known chain transfer agent such as alkylmercaptans, thioglycolic acids or esters thereof, isopropyl alcohol, allyl alcohol, etc. can be added. The reaction mixture is heated with stirring to obtain the desired acrylamide copolymers. The Examiner notes that Oguni et al. disclose that it is desirable that the viscosity of the resulting acrylamide copolymer is not higher than 15000 cps at 25°C when measured with a Brookfield viscometer (col. 6, lines 1 1-14).

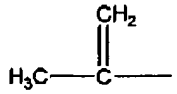
Applicants respectfully traverse this rejection and request that the rejection be reconsidered and withdrawn.

In order to support an anticipation rejection under §102(b), each and every element of the claimed invention or its substantial equivalent must be found within the four corners of a single reference cited by the Examiner to anticipate. Hybritech Inc. v. Monoclonal Antibodies, Inc., 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986).

In the second full paragraph on page 3 of the Office Action, it is alleged that the vinyl monomer (b) of Oguni et al. includes vinyl monomers containing tertiary, secondary or

primary amino group such as allylamine etc., or their salts of inorganic or organic acid such as hydrochloric acid, sulfuric acid, formic acid, acetic acid, etc., which allegedly correspond to monomer (a) of the present application.

However, Oguni et al. does not disclose monomer (a) of the present invention as represented by Formula (1). Oguni et al. disclose use of an allylamine, the chemical formula of which is $CH_2$=$CHCH_2NH_2$. Oguni et al. does not suggest or disclose a methallyl group



as in Formula (1) of the present invention.

Even if the amine fragment of the allylamine disclosed by Ogani et al. is a tertiary or secondary amine, the obtained amines are different from those represented by formula (1).

Therefore Oguni et al. does not anticipate claims 16, 17, 27, 29-31, 34 and 35 and Applicants respectfully request that the rejection be reconsidered and withdrawn.

Claims 23, 25, 32, 33, 36 and 37 have been rejected under 35 U.S.C. § 103(a) as being unpatentable as obvious over Oguni et al. in view of Nasu et al. U. S. Patent No. 5,756,646 (hereinafter "Nasu").

With regard to the limitations of present claims 23, 25, 32, 33, 36 and 37, the Examiner notes that Oguni et al. does not disclose that the polymerization is conducted in the presence of a urea compound.

The Examiner alleges that Nasu et al. discloses an agent for improving surface quality of paper comprising an acrylamide resin composition obtained by hydrolyzing an acrylamide resin, which is obtained by polymerizing an acrylamide monomer in the presence of a urea compound (abstract), such as urea, thiourea, ethylene urea, ethylene thiourea, etc. or combinations thereof. The Examiner notes that Nasu disclose that it is especially economically preferable to use urea alone (col. 3, lines 16-19). The Examiner asserts that it would have been obvious to one having ordinary skill in the art when the invention was made to add a urea compound as taught by Nasu during the polymerization process of the acrylamide polymer composition of Oguni et al. to achieve excellent effect for improving surface strength, tensile strength and internal strength of paper (Nasu, col. 2, lines 37-39), and thus to arrive at the subject

matter of claims 23, 25, 32, 33, 36 and 37, in the absence of unexpected results commensurate in scope of the claims.

Applicants respectfully traverse this rejection and request that the rejection be reconsidered and withdrawn.

The law is replete with cases holding that there must be some suggestion or motivation in the prior art to combine the references. When making a rejection under 35 U.S.C. § 103, the Examiner has the burden of establishing a prima facie case of obviousness. In re Fritch, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992).

The Examiner can satisfy this burden only by showing an objective teaching in the prior art, or knowledge generally available to one of ordinary skill in the art, which would lead an individual to combine the relevant teachings of the references [and/or the knowledge] in the manner suggested by the Examiner. Id.; In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

The mere fact that the prior art could be modified does not make the modification obvious *unless the prior art suggests the desirability of the modification* (emphasis added). In re Fritch, 23 U.S.P.Q.2d at 1784; In re Laskowski, 10 U.S.P.Q.2d 1397, 1398 (Fed. Cir. 1989); In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

"The ultimate determination of patentability must be based on consideration of the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence." Manual of Patent Examining Procedure, (Rev. 1, Feb. 2003) § 716.01(d) and In re Oetiker, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992).

As discussed in detail above, Oguni et al. does not suggest or disclose monomer (a) of the presently claimed invention. The teachings of Nasu et al. do not remedy this deficiency in the cited prior art. Nasu et al. does not suggest or disclose monomer (a) of the presently claimed invention.

In the Nasu process, the hydrolysis step is required to achieve improvement in surface strength, tensile strength and internal strength of paper. See column 2, line 64 – column 3, line 15. The paragraph states that the hydrolysis makes the acrylamide resin composition have a sequence different from the sequence of the conventional acrylamide resins, and this difference contributes to the improved surface strength, tensile strength and internal strength of paper

coated with the acrylamide resin composition. Therefore, just the polymerization in the presence of a urea compound without hydrolysis will not result in the improved surface strength, tensile strength and internal strength. Accordingly, Applicants respectfully request that the rejection be reconsidered and withdrawn.

Applicants wish to draw the Examiner's attention to the following comparative example in the specification. As shown in Table 2, 2-propene-1-aminium, N,N,N-2-tetramethyl chloride, which is abbreviated to PATMC, was used as monomer (a) in Example 1. The rational formula of PATMC is $[CH_2=C(CH_3)CH_2\text{-}N(CH_3)_3]^+Cl^-$, i.e., it is a salt of methallylamine. In Comparative Example 2, 2-propenylamine, or allylamine ($CH_2=CHCH_2\text{-}NH_3$), which is abbreviated to ALA, was used as monomer (a). The kinds of the other monomers are identical in both examples, and the amounts thereof are essentially the same. Note that 0.25 mol% of PATMC was used in total in Example 1, while 6.0 mol% of ALA was used in total in Comparative Example 2. The reason for this difference is as follows: allylamine is a chain transfer agent, and the product tends to become less gelled as the amount of used allylamine increases. The inventors of the present invention tried to make a measurable polymer in Comparative Example 2, and therefore used a larger amount of allylamine.

As shown in Table 3, the acrylic amide polymer obtained in Example 1 included 20.4% of solids and 0.03 mol% of unreacted acrylic amide, and had a pH of 3.9 and a viscosity of 6210 mPa·s. On the other hand, the product obtained in Comparative Example 2 was gelled and the properties could not be measured, despite the fact that the large amount of allylamine was used.

Since the allylamine (specifically taught by Oguni et al.) does not work in the present invention at all, monomer (a) described in claim 1 (methallylamine) cannot be reasonably and specifically selected from the teachings of Oguni et al.

In view of the remarks above, reconsideration of the rejections and favorable allowance of all claims is respectfully requested.

Respectfully submitted,

THE WEBB LAW FIRM

Date: December 6, 2006

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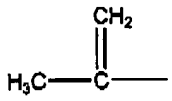

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Date: December 6, 2006

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